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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,615	11/13/2003	Peter Battaglin	D0047A CIP	6370
20306	7590	12/29/2005	EXAMINER	
MCDONNELL BOEHNEN HULBERT & BERGHOFF LLP 300 S. WACKER DRIVE 32ND FLOOR CHICAGO, IL 60606			LI, RUIXIANG	
			ART UNIT	PAPER NUMBER
			1646	

DATE MAILED: 12/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/712,615	BATTAGLINO ET AL.	
	Examiner	Art Unit	
	Ruixiang Li	1646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 26-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 26-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/15/04, 09/26/05</u> . | 6) <input checked="" type="checkbox"/> Other: <u>Sequence alignment</u> . |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group IV (original claims 8-17) and SEQ ID NO:2 in the reply filed on 10/11/2005 is acknowledged.
2. Applicants' amendment filed on 10/11/2005 has been entered in full. Claims 1-25 have been canceled. New claims 26-38 have been added. Claims 26-38 are pending and under consideration.

Information Disclosure Statement

3. The Information Disclosure Statements submitted on 09/26/2005 and 10/15/2004 have been received by the Office and the listed references have been considered by the Examiner.

Drawings

4. The drawings submitted on 11/13/2003 are accepted by the Examiner.

Claim Rejections —35 U.S.C. § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Art Unit: 1646

6. Claims 26-38 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific and substantial asserted utility or a well-established utility.

Claims 26-38 are drawn to a method of screening for candidate compounds to identify modulators of a G-protein coupled receptor comprising the amino acid sequence of SEQ ID NO: 2. The claimed invention is not supported by either a specific and substantial asserted utility or a well-established utility. A specific and substantial utility is one that is particular to the subject matter claimed and that identifies a "real world" context of use for the claimed invention which does not requires further research.

The instant disclosure discloses a polypeptide set forth in SEQ ID NO: 2 and a polynucleotide sequence of SEQ ID NO: 1, which encodes the polypeptide. The disclosure further discloses the polypeptide of the present invention is a candidate GPCR and is closely related to the somatostatin and GPR receptor families based on sequence similarity using the BLAST program. The disclosure further discloses that this orphan GPCR is expressed highly in brain (1st paragraph of page 9).

However, such disclosure is insufficient to satisfy the utility requirement under 35 U.S.C. § 101 because the ligand of the claimed polypeptide has not been disclosed and the specific biological functions of the polypeptide are unknown. While members of GPCRs share certain characteristic structural motifs and features of signal transduction pathways, the biological function vary widely (see, e.g., Ji et al. G-protein-coupled receptors, *J. Biol. Chem.*, 273:17299-17302, 1998). Thus, without a

defined ligand or biological function, one skilled in the art would not be able to recognize the specific and substantial use of the polypeptide of SEQ ID NO:2 and consequently the claimed method of screening for candidate compounds which modulate the activity of the polypeptide of SEQ ID NO:2.

The instant disclosure also asserts that the claimed invention provide methods for the treatment or prevention of cancers, immune disorders, or neurological disorders (page 12). The instant disclosure further asserts that the molecules of the present invention can be used for diagnosis of brain-related disorders or for monitoring response to therapy in humans (page 13). However, these asserted utilities are not specific and substantial because they do not identify or reasonably confirm a "real world" context of use. The disclosure neither identifies the biological functions of the claimed proteins nor any disorders that are associated with the claimed molecules. Clearly, further research would be required to determine the functions of the claimed molecules or to identify a disease that can be treated or diagnosed with the claimed molecules See *Brenner v. Manson*, 383 U.S. 519, 148 USPQ 689 (Sup. Ct. 1966), noting that "a patent is not a hunting license. It is not a reward for the search, but compensation for its successful conclusion."

The invention also lacks a well-established utility. A well-established utility is a specific, substantial, and creditable utility that is well known, immediately apparent, or implied by the specification's disclosure of the properties of a material. Being a putative G-protein coupled receptor does not simply endow the polypeptide of the present invention because of the diversity of the structure and functions of the G-

protein coupled receptors. The prior art teaches a polypeptide that is 100% identical to the polypeptide of SEQ ID NO: 2 of the present invention and the nucleic acid encoding the polypeptide (see attached sequence alignment). However, the prior art does not teach the biological functions or any physiological significance of the polypeptide. No art of record discloses or suggests any property or activity for the claimed molecules such that another non-asserted utility would be well-established for the compounds. Therefore, since the polypeptide of SEQ ID NO:2 does not have immediately practical application, a method of using the polypeptide for screening a modulator of the polypeptide consequently does not have a patentable utility.

7. Claims 26-38 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

Furthermore, even if the claimed method of screening candidate compounds were to have a patentable utility, the instant disclosure would not be found to be enabling for the full scope of the claimed invention in claims 36 and 37.

The factors that are considered when determining whether a disclosure satisfies enablement requirement include: (i) the quantity of experimentation necessary; (ii) the amount of direction or guidance presented; (iii) the existence of working examples; (iv) the nature of the invention; (v) the state of the prior art; (vi) the relative skill of those in the art; (vii) the predictability or unpredictability of the art; and (viii) the breadth of the claims. *Ex Parte Forman*, 230 USPQ 546 (Bd Pat. App. & Int.

1986); *In re Wands*, 858 F. 2d 731, 8 USPQ 2d 1400 (Fed. Cir. 1988).

Claims 36 and 37 are drawn to a method of screening a candidate compound which is useful for treating anxiolytic disorders or caudate nucleus disorders. However, the instant disclosure fails to identify the biological functions of the claimed polypeptide, fails to demonstrate a causative link between the molecules of the present invention and anxiolytic disorders or caudate nucleus disorders, and fails to demonstrate the likelihood of the success of treating anxiolytic disorders or caudate nucleus disorders with a potential candidate compound. The instant disclosure fails to provide sufficient guidance, information, or working examples on how to treat these disorders. While the relative skill of those in the art is high in recombinant DNA technology and method of screening technology, successful treatment of the anxiolytic disorders or caudate nucleus disorders remains a challenge. The prior art does not provide compensatory teachings to enable one skilled in the art to treat the broadly claimed disorders using a candidate compound screened by the claimed method.

Accordingly, the instant disclosure fails to enable such a claimed method of screening for a candidate compound which is useful for treating anxiolytic disorders or caudate nucleus disorders, it would require undue experimentation for one skilled in the art to make and use the claimed method embraced by the instant claims.

Claim Rejections—35 USC § 112, 2nd paragraph

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

Art Unit: 1646

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 26-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 26 is indefinite because the steps of the method do not necessarily achieve the goal set forth in the claim preamble. It is unclear what is detected or measured that renders one able to select a candidate compound. Claims 25-28 depend from claim 23.

Claim 31 is indefinite also because the claim recites "high levels" or "low levels". It is unclear what the metes and bounds of the terms are.

Claim Objections—Minor Informalities

10. Claims 26 and 29-31 are objected to because of the following informalities: (i). claims 26 and 31 use an indefinite article to refer to a unique sequence; "an amino acid sequence" in claim 26, line 4 and in claim 31, line 2 should be amended to "the amino acid sequence"; (ii). Claim 29 has a typographic error in line 1: [TRUE?]; and (iii). claim 30 appears to depend from claim 26, not claim, which limits the cells to be CHO cells. Appropriate correction is required.

Conclusions

11. No claims are allowable.

Advisory Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ruixiang Li whose telephone number is (571) 272-0875. The examiner can normally be reached on Monday through Friday from 8:30 am to 5:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Caputa, can be reached on (571) 272-0829. The fax number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, please contact the Electronic Business Center (EBC) at the toll-free phone number 866-217-9197.

Ruixiang Li

Ruixiang Li, Ph.D.
Primary Examiner
December 18, 2005

CC sequence, which are used in an example from the present invention
 XX Sequence 508 AA:

Query Match 100.0%; Score 2644; DB 6; Length 508;
 Best Local Similarity 100.0%; Pred. No. 1.1e-233;
 Matches 508; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MSTCTNSTRENSSSHTCMPLSKMPISLAHGIRSTLVVFLAASFGNVIVLALVLRKP 60
 DB 1 MSTCTNSTRENSSSHTCMPLSKMPISLAHGIRSTLVVFLAASFGNVIVLALVLRKP 60
 QY 61 QLLQVTRNRFIFNLVTDLQISLVAPWVAVTSVPLFWPLNSHFCPLVSLTHLPAFASV 120
 DB 61 QLLQVTRNRFIFNLVTDLQISLVAPWVAVTSVPLFWPLNSHFCPLVSLTHLPAFASV 120
 QY 121 TIVLVSDRYLSIIHPLSYPSKMTQRGVLVLYGTWIVAILQSTPPLVYGMGOAFDERNA 180
 DB 121 TIVLVSDRYLSIIHPLSYPSKMTQRGVLVLYGTWIVAILQSTPPLVYGMGOAFDERNA 180
 QY 181 LGSMTWGAASPSYTIISVSVFIVPLVIMACYSVFCAARRQHALLVNYKRSLEVRVXD 240
 DB 181 LGSMTWGAASPSYTIISVSVFIVPLVIMACYSVFCAARRQHALLVNYKRSLEVRVXD 240
 QY 241 CVENEDBEAGAKKEBFODESFRROHGEVYAKEGMEAKDGLKAKESGTGTSSESVEA 300
 DB 241 CVENEDBEAGAKKEBFODESFRROHGEVYAKEGMEAKDGLKAKESGTGTSSESVEA 300
 QY 301 RGSSEVERESTVASDGSMEKESGTYKVENSMKADKRTENVNCSIDLGDMEFEGDDI 360
 DB 301 RGSSEVERESTVASDGSMEKESGTYKVENSMKADKRTENVNCSIDLGDMEFEGDDI 360
 QY 361 NFSEDDVEAVNIPESLPPSRNSNSNPPLPRCYQCKAKVIFIIIFSYVSLGPRCLAV 420
 DB 361 NFSEDDVEAVNIPESLPPSRNSNSNPPLPRCYQCKAKVIFIIIFSYVSLGPRCLAV 420
 QY 421 LAWVVDVEOVPOVMTITIIWLPLOCCIHPRVYGVWHTIKKEIDMLKKPFCKEPRK 480
 DB 421 LAWVVDVEOVPOVMTITIIWLPLOCCIHPRVYGVWHTIKKEIDMLKKPFCKEPRK 480
 QY 481 EDSPDLPTGEGTEGKIYPSYDSTRP 508
 DB 481 EDSPDLPTGEGTEGKIYPSYDSTRP 508

RESULT 6
 ABR42865
 11 ABR42865 standard; protein; 508 AA.

XX ABR42865;
 XX 22-SEP-2003 (first entry)

DE Human G-protein coupled receptor OM_10.

KM G-protein coupled receptor; GPCR; OM_10; human; receptor; cardiac;
 KM hyperactive; hypotensive; antianginal; cytostatic; antiproliferative;
 KM analgesic; gynecological; antidepressant; antidiabetic; osteopathic;
 KM neuroleptic; tranquilizer; nephrotoxic; antitumor; antiallergic;
 KM neuroleptic; anticonvulsant; neuroprotective; antiparkinsonian;
 KM gene therapy.

XX Homo sapiens.

XX OS location/Qualifiers

XX Key 34, 49

FT Domain /note= "predicted transmembrane domain"

FT Domain /note= "predicted transmembrane domain"

FT Domain /note= "predicted transmembrane domain"

FT Domain /note= "predicted transmembrane domain"

FT Domain /note= "predicted transmembrane domain"

FT Domain 188..214
 FT Domain /note= "predicted transmembrane domain"
 FT Domain /note= "predicted transmembrane domain"
 FT Domain 437..446
 FT Domain /note= "predicted transmembrane domain"

XX WO2003044162-A2.

XX 30-MAY-2003.

XX 12-NOV-2002; 2002WO-US036204.

XX 16-NOV-2001; 2001US-0332110P.

XX (AMR) WYETH.

XX Blatcher M, Paulsen JE, Bates BG;

XX WPI: 2003 449811/42.

XX N-PSDB; ABR42865.

PT New polynucleotides encoding G-protein coupled receptor, i.e. OM-10 and
 PT UP-11 polypeptides, useful for diagnosing, preventing and treating, e.g.
 PT Parkinson's disease, acute heart failure, hypertension, cancer or
 PT osteoporosis.

PS Claim 27; Page 178-180; 190pp; English.

XX The present sequence is the protein sequence of a novel human G-protein
 CC coupled receptor (GPCR) termed OM_10. This orphan GPCR was identified
 CC from a genome database search using the human 5-HT6 receptor sequence.
 CC Identified regions of genomic DNA were used to predict full-length genes,
 CC and these gene predictions were used to design probes and primers for the
 CC isolation of a cDNA clone containing the predicted OM_10 open reading
 CC frame. OM_10 is expressed predominantly in the putamen and caudate
 CC nucleus. OM_10 and UP-11 polypeptides, polynucleotides, agonists and
 CC antagonists of the invention are useful in drug screening assays,
 CC for pharmacogenomics, monitoring effects during clinical trial, or for
 CC diagnosing, preventing and treating diseases associated with enhanced or
 CC inhibited GPCR activity, e.g. acute heart failure, hypertension,
 CC hypertension, angina pectoris, myocardial infarction, hyperproliferative
 CC diseases such as cancers and psoriasis, apoptotic diseases, pain,
 CC endometriosis, anorexia, bulimia, asthma, osteoporosis, schizophrenia,
 CC delirium, depression, anxiety, urinary retention, ulcers, allergies,
 CC dyskinesias such as Huntington's disorder or Gilles de la Tourette's
 CC syndrome, Alzheimer's disease, or Parkinson's disease

XX Sequence 508 AA;

Query Match 100.0%; Score 2644; DB 7; Length 508;
 Best Local Similarity 100.0%; Pred. No. 1.1e-233;
 Matches 508; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MSTCTNSTRENSSSHTCMPLSKMPISLAHGIRSTLVVFLAASFGNVIVLALVLRKP 60
 DB 1 MSTCTNSTRENSSSHTCMPLSKMPISLAHGIRSTLVVFLAASFGNVIVLALVLRKP 60
 QY 61 QLLQVTRNRFIFNLVTDLQISLVAPWVAVTSVPLFWPLNSHFCPLVSLTHLPAFASV 120
 DB 61 QLLQVTRNRFIFNLVTDLQISLVAPWVAVTSVPLFWPLNSHFCPLVSLTHLPAFASV 120
 QY 121 TIVLVSDRYLSIIHPLSYPSKMTQRGVLVLYGTWIVAILQSTPPLVYGMGOAFDERNA 180
 DB 121 TIVLVSDRYLSIIHPLSYPSKMTQRGVLVLYGTWIVAILQSTPPLVYGMGOAFDERNA 180
 QY 181 LGSMTWGAASPSYTIISVSVFIVPLVIMACYSVFCAARRQHALLVNYKRSLEVRVXD 240
 DB 181 LGSMTWGAASPSYTIISVSVFIVPLVIMACYSVFCAARRQHALLVNYKRSLEVRVXD 240
 QY 241 CVENEDBEAGAKKEBFODESFRROHGEVYAKEGMEAKDGLKAKESGTGTSSESVEA 300
 DB 241 CVENEDBEAGAKKEBFODESFRROHGEVYAKEGMEAKDGLKAKESGTGTSSESVEA 300

Db 452 TCGAAGATGACCAAGCCGCGGTTACCTGCTCTTATGAGCACTGATTTGTGACATC 511
 Qy 161 LeuGlnSerThrProProLeuTyrGlyThrGlyGlnAlaAlaPheAspGluArgAsnAla 180
 Db 512 CTGCGAGACACTCTCTCACTCACTGAGGCGGCGGCGGCTGCTTTGATGAGCGCAATCT 571
 Qy 181 LeuCySerMetIleTyrGlyValAspProSerTyrThrIleLeuSerValValSerPhe 200
 Db 572 CTGCTGCTCATGATCTGGGGGGCCAGCCCACTCACTATTTCTCAGGCTGTCTTC 631
 Qy 201 AlaValIleProLeuIleValMetIleAlaCyTyrSerValValPheCysAlaAlaArg 220
 Db 632 ATCTCATCTCCATGATGATGATGATGATGATGATGATGATGATGATGATGATGATGAT 691
 Qy 221 ArgGlnHisAlaLeuLeuTyrAsnValValValValValValValValValValValVal 240
 Db 692 AGCGAGATGCTCTGCTGTACAACTCAAGAGACACAGCTTGAGAGTCCAGTCAAGAC 751
 Qy 241 CysValGluAspGluAspGluGlyValGlyValGlyValGlyValGlyValGlyValGly 260
 Db 752 TGTGTGAGATGAGATGAGATGAGATGAGATGAGATGAGATGAGATGAGATGAGATGAG 811
 Qy 261 GluPheArgArgGlnHisGlyGlyValValValValValValValValValValValVal 280
 Db 812 GAGTTTGGCCGCCCATGAAAGGTGAGGTCAAGGCCAAGAGAGAGAGAGAGAGAGAGAGAG 871
 Qy 281 AspGlySerLeuValValValValValValValValValValValValValValValVal 300
 Db 872 GACGCGAGCTGAAAGGCCAAGAGAGAGAGAGAGAGAGAGAGAGAGAGAGAGAGAGAGCC 931
 Qy 301 ArgGlySerGluGluValValValValValValValValValValValValValValVal 320
 Db 932 AGGGGCGAGCGAGAGCTCAG 991
 Qy 321 LysGluGlySerThrValValValValValValValValValValValValValValVal 340
 Db 992 AAGGAGGCGAGCAACAAAGTTGAGAGAGAGAGAGAGAGAGAGAGAGAGAGAGAGAGAG 1051
 Qy 341 ValAsnGlnCySerIleAspLeuGlyValValValValValValValValValValVal 360
 Db 1052 GTCAACAGAGTGCACATTTGACCTTGTGAGATGATGATGATGATGATGATGATGATGAT 1111
 Qy 361 AsnPheSerGluAspAspValGluAlaValAsnIleProGlnSerLeuProProSerArg 380
 Db 1112 AATTTCATGATGAGATGAGATGAGATGAGATGAGATGAGATGAGATGAGATGAGATGAG 1171
 Qy 381 ArgAsnSerAsnSerAsnProProLeuProArgCysTyrGlnCysValAlaAlaValVal 400
 Db 1172 CGTACAGCAACACCAACCTCTCTGCGCCAGTGTCTACAGTGCACAAAGCTGCTAAAGTG 1231
 Qy 401 IlePheIleIleIlePheSerTyrValIleSerLeuGlyProTyrCysPheLeuAlaVal 420
 Db 1232 ATCTTCATCATCATTTCTCTATGCTATCTCTGCGGAGCTCATCTGCTTTTATGAGATG 1291
 Qy 421 LeuAlaValTyrPheValAspValGluThrGlnValProGlnTyrValIleThrIleIleIle 440
 Db 1292 CTGGCCCTGTGGGTGATGTGAAACCCAGGTACCCAGTGGAGATCAACATATATATC 1351
 Qy 441 TyrLeuPhePheLeuGlnCysCysIleHisProTyrValTyrGlyTyrMetHisLysThr 460
 Db 1352 TGGCTTTCTTCTCGAGTGTGATCAACCCCTATGTCTATGTGCTATGTGCTATGTGCTAT 1411
 Qy 461 IleValValGluIleGlnAspMetLeuValValValValValValValValValValVal 480
 Db 1412 ATTAAGAGAGAAATCCAGACATGCTGAAAGTTCTTCTGCAAGAAACCCCGAAA 1471
 Qy 481 GluAspSerHisProAspLeuProGlyThrGlnGlyValValValValValValValVal 500
 Db 1472 GAAGATGAGCCACCCAGACTGCTCCGGAACAGAGGTGGAGCTGAAGGCAAGATTGCTCCCT 1531
 Qy 501 SerTyrAspSerAlaThrPhePro 508
 Db 1532 TCTCAATCTCTGCTACTTTTCTTCT 1555

RESULT 9
 ACF03567
 ID ACF03567 standard; cDNA; 1584 BP.
 AC ACF03567;
 DT 15-SEP-2003 (first entry)
 XX
 DE Human NOV14a protein encoding cDNA SEQ ID NO:41.
 KW Human; NOVX; cytosolic; cardiant; antiinflammatory; immunosuppressive;
 KW antiallergic; haemostatic; anti-HIV; antidiabetic; antiarteriosclerotic;
 KW anorectic; antistomatitic; nephrotropic; antiarthritic; hepatotropic;
 KW neuroprotective; nootropic; antibacterial; virucide; antiparasitic;
 KW relaxant; anticonvulsant; hypotensive; vasotropic; antiparkinsonian;
 KW vulnery; angiogenic; antiangiogenic; gene therapy; vaccine; cancer;
 KW cardiomyopathy; atherosclerosis; hypertension; diabetes; inflammation;
 KW autoimmune disorder; allergy; blood disorder; AIDS; obesity; asthma;
 KW acquired immunodeficiency syndrome; nephropathy; cirrhosis; arthritis;
 KW Alzheimer's disease; Parkinson's disease; goitre; infection; stroke;
 KW muscular dystrophy; epilepsy; wasting disorder; chromosome X; gene; ss.
 OS Homo sapiens.
 PN W0200294870-A2.
 XX
 PD 28-NOV-2002.
 XX
 PF 02-NOV-2001; 2001WO-US051580.
 XX
 PR 02-NOV-2000; 2000US-0245291P.
 PR 02-NOV-2000; 2000US-0245317P.
 PR 07-NOV-2000; 2000US-0246562P.
 PR 08-NOV-2000; 2000US-0246871P.
 PR 26-JAN-2001; 2001US-0264389P.
 PR 26-JAN-2001; 2001US-0264423P.
 PR 29-JAN-2001; 2001US-0264799P.
 PA (CURA-) CURAGEN CORP.
 XX
 PI Groose WM, Macdonald JR, Smithson G, Millet I, Stone DJ;
 PI Gunther E, Ellerman K, Alsbrook JP, Lepley DM, Burgess CE;
 PI Sytker KA, Edinger SR, Gangoli BA, Raupler KU, Li L;
 PI Guo X, Fernandes ER, Vernet CM, Tchierne VT, Casman SJ, Shenoy S;
 PI Mishra V, Furtak K, Baumgartner JC, Colman SD;
 XX
 DR WPI: 2003-140359/13.
 DR P-PSDB; ABR57432.
 PT New NOVX polypeptide useful for preventing or treating NOVX-associated
 PT disorders, e.g. cancer, cardiomyopathy, atherosclerosis or diabetes, and
 PT in chromosome mapping, tissue typing or pharmacogenomics.
 XX
 PS Claim 8; Page 129; 346pp; English.
 XX
 CC ACF03547 to ACF03570 encode the human NOVX proteins (I) given in ABR57412
 CC to ABR57435. (I) have cytosolic, cardiant, antiinflammatory, nootropic,
 CC immunosuppressive, antiallergic, haemostatic, anti-HIV, antidiabetic,
 CC antiarteriosclerotic, anorectic, antistomatitic, nephrotropic, virucide,
 CC antiarthritic, hepatotropic, neuroprotective, antiparkinsonian,
 CC antiparasitic, anticonvulsant, hypotensive, vasotropic, antiparkinsonian,
 CC vulnery, angiogenic and antiangiogenic activities, and can be used in
 CC gene therapy and vaccines. The NOVX polypeptides and their antibodies can
 CC be used to determine the presence or absence of (I) in a sample. The NOVX
 CC polypeptides, polynucleotides encoding them, and antibodies against them,
 CC are useful in manufacturing a medicament for treating or preventing a
 CC syndrome associated with a NOVX-associated disorder such as hypertension,
 CC cardiomyopathy, atherosclerosis, cancer, diabetes, asthma, inflammation,
 CC autoimmune disorders, allergies, blood disorders, obesity, acquired
 CC immunodeficiency syndrome (AIDS), immunoglobulin (Ig) A nephropathy,
 CC cirrhosis, arthritis, Alzheimer's disease, Parkinson's disease, goitre,
 CC infections (e.g. bacterial, viral, parasitic), stroke, muscular

← yes, seq ID NO:2 is present.

Uses of the Compositions of the Invention

The protein similarity information, expression pattern, and map location for the GPCR (Alpha 1A/1C Adrenergic Receptor Subfamily)-like protein and nucleic acid disclosed herein suggest that this GPCR (Alpha 1A/1C Adrenergic Receptor Subfamily) may have important structural and/or physiological functions characteristic of the GPCR family. Therefore, the nucleic acids and proteins of the invention are useful in potential diagnostic and therapeutic applications and as a research tool. These include serving as a specific or selective nucleic acid or protein diagnostic and/or prognostic marker, wherein the presence or amount of the nucleic acid or the protein are to be assessed, as well as potential therapeutic applications such as the following: (i) a protein therapeutic, (ii) a small molecule drug target, (iii) an antibody target (therapeutic, diagnostic, drug targeting/cytotoxic antibody), (iv) a nucleic acid useful in gene therapy (gene delivery/gene ablation), and (v) a composition promoting tissue regeneration in vitro and in vivo (vi) biological defense weapon.

The nucleic acids and proteins of the invention are useful in potential diagnostic and therapeutic applications implicated in various diseases and disorders described below and/or other pathologies. For example, the compositions of the present invention will have efficacy for treatment of patients suffering from Cardiovascular and circulatory diseases, Cardiomyopathy, Atherosclerosis, Hypertension, Congenital heart defects, Aortic stenosis, Atrial septal defect (ASD), Atrioventricular (A-V) canal defect, Ductus arteriosus, Pulmonary stenosis, Subaortic stenosis, Ventricular septal defect (VSD), valve diseases, Tuberous sclerosis, Scleroderma, Obesity, Stroke, Neurological and neurodegenerative disorders, endocrine disorders, Diabetes, Autoimmune disease, Renal artery stenosis, Interstitial nephritis, Glomerulonephritis, Polycystic kidney disease, Systemic lupus erythematosus, Renal tubular acidosis, IgA nephropathy, Hypercalcaemia, Lesch-Nyhan syndrome, other renal disorders, cancer, trauma, tissue regeneration (in vitro and in vivo), viral/bacterial/parasitic infections, and in transplantation.

These materials are further useful in the generation of antibodies that bind immunospecifically to the novel substances of the invention for use in therapeutic or diagnostic methods.

FIGURES

Figure 1. Nucleotide sequence including the sequence encoding the GPCR (Alpha 1A/1C Adrenergic Receptor Subfamily)-like protein of the invention.

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>139792475_EXT
CAACCTGTCTCAGCCCTCTGGCTGTTGCCATGACGTCCACCTGCACCAACAGCACGCGGAGAGTAACA
GCAGCCACACGTGCATGCCCCCTCCAAAATGCCCATCAGCCTGGCCACGGCATCATCCGCTCAACCGT
GCTGGTTATCTTCCTCGCCGCTCTTTTCGTCGGCAACATAGTGTGGCGCTAGTGTTGCAGCGCAAGCCG
CAGCTGCTGCAGGTGACCAACCGTTTATCTTTAACCTCCTCGTCACCGACCTGCTGCAGATTTCGCTCG
TGGCCCCCTGGGTGGTGGCCACCTCTGTGCCCTCTTCTGGCCCCCTCAACAGCCACTTCTGCACGGCCCT
GGTTAGCCTCACCCACCTGTTGCCTTCGCCAGCGTCAACACCATTTGCTTTGGTGTGAGTGGATCGCTAC
TTGTCCATCATCCACCTCTCTCTACCCGTCGAAGATGACCCAGCGCCGCGTTACCTGCTCCTCTATG
GCACCTGGATTGTGGCCATCCTGCAGAGCACTCTCCACTCTACGGCTGGGGCCAGGCTGCCTTTGATGA
GCGCAATGCTCTCTGCTCCATGATCTGGGGGGCCAGCCCCAGCTACACTATTCTCAGCGTGGTGTCTTC
ATCGTCATTCCACTGATTGTGATGATTGCCGTGCTACTCCGTGGTGTCTGTGTCAGCCCGGAGGCAGCATG
CTCTGCTGTACAATGTCAAGAGACACAGCTTGAAGTGCGAGTCAAGGACTGTGTGGAGAATGAGGATGA
AGAGGGAGCAGAGAAGAAGGAGGAGTTCCAGGATGAGAGTGAGTTTCGCCGCCAGCATGAAGGTGAGGTC
AAGGCCAAGGAGGGCAGAATGGAAGCCAAGGACGGCAGCCTGAAGGCCAAGGAAGGAAGCACGGGGACCA
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GTGAGAGTAGTGTAGAGGCCAGGGGAGCGAGGAGGTCAGAGAGAGCAGCACGGTGGCCAGCGACGGCAG
CATGGAGGGTAAGGAAGGCAGCACCAAAGTTGAGGAGAAGCAGCATGAAGGCAGACAAGGGTCGCACAGAG
GTCAACCAGTGCAGCATTTGACTTGGGTGAAGATGACATGGAGTTTGGTGAAGACGACATCAATTTTCAGTG
AGGATGACGTGAGGCAGTGAACATCCCGGAGAGCCTCCACCCAGTCGTCGTAACAGCAACAGCAACCC
TCCTCTGCCCAGGTGCTACCAAGTGCAGGCTGCTAAAGTGATCTTCATCATCATTTTCTCTATGTGCTA
TCCCTGGGGCCCTACTGCTTTTTAGCAGTCTGGCCGTGTGGGTGGATGTCGAAACCCAGGTACCCAGT
GGGTGATCACCATAATCATCTGGCTTTTCTTCTGCACTGCTGCATCCACCCCTATGTCTATGGCTACAT
GCACAAGACCATTAAGAAGGAAATCCAGGACATGCTGAAGAAGTTCTTCTGCAAGGAAAAGCCCCGAAA
GAAGATAGCCACCCAGACCTGCCCGAACAGAGGGTGGGACTGAAGGCAAGATTGTCCCTTCTACGATT
CTGCTACTTTTCTTGAAGTTAGTTCTAAGGCAAACCTTGAAC

Figure 2. Protein sequence encoded by the coding sequence shown in Figure 1.

>139792475_EXT

MTSTCTNSTRESNSSHTCMPLSKMPISLAHGIIRSTVLVIFLAASFVGNIVLALVLQRKPQLQVTNRFI
FNLLVTDLLQISLVAPWVWVATSVPLFWPLNSHFCALVSLTHLFAFASVNTIVLVSVDRYLSIIHPLSY
SKMTQRRGYLLLYGTWIVAILQSTPPLYGWGQAAFDERNALCSMIWGASPSYILSVVSFIVIPLIWMIA
CYSVVFCARQHALLYNVKRHSLEVRVKDCVENEDEGAKEKEEFQDESEFRQHEGEVKAKEGRMEAK
DGLSKAKEGSTGTSESSVEARGSEEVRESSTVASDGSMEGKEGSTKVEENSMKADKGRTEVNQCSIDLGE
DDMEFGEDDINFSEDDVEAVNIPESLPPSRNSNSNPPLPRCYQCKAAKVIFIIIFSYVLSLGPYCFILAV
LAVWVDVETQVPQWVITIIWFLQCCIHPIVYGYMHKTIKKEIQDMLKKFFCKEKPPEKEDSHPDLPST
EGGTGKIVPSYDSATFP

Figure 3A. BLASTN identity search for the nucleic acid of the invention.

>gb:GENBANK-ID:HUMA1DA|acc:L31772.1 Human alpha-1a/d adrenergic receptor
mRNA,

complete cds - Homo sapiens, 1831 bp.

Length = 1831

Plus Strand HSPs:

Score = 415 (62.3 bits), Expect = 6.9e-09, P = 6.9e-09

Identities = 313/534 (58%), Positives = 313/534 (58%), Strand = Plus / Plus

Query: 203 GCAAGCCGC-AGCTGCTGCAGGTGACCAACCGTTTATCTTTAACCTCCTCGTCACCGAC 261
GCAA CCGC A CTGC G GT ACCAAC TTT ATC T AACCT CGT CCGAC
Sbjct: 368 GCAA-CCGCCACCTGCAGACCGTACCAACTATTTATCGTGAACCTGGCCGTGGCCGAC 426
Query: 262 CTGCTGCAGATTTCGCTCGTGGCCCCCTGGGTGGTGGCCACCTCTGTGCTCTCTTCTGG 321
CTGCTGC GA C CGT CCCT GG CCA GT C CTCTGG
Sbjct: 427 CTGCTGCTGAGCGCCACCGTACTGCCCTTCTCGGCCACCATGGAGGTTCTGGGCTTCTGG 486
Query: 322 CCCCTCAACAGCCACTTCTGC-ACGGCCCTGGTTAGCC-TCACCCACCTGTTCCGCTTCG 379
CC T C GC CTTCTGC ACG TGG GCC T C CTGT C C G
Sbjct: 487 GCCTTTGGCCGCGCCTTCTGCGACGTA--TGGGCCCGCGTGACGTGCTGTGCTGCACGG 544
Query: 380 CCAGCGTCAACACCAT-TGCTTTGGTGTGCTAGTGGATCGCTACTTGTCCATCATCCACCCT 438
CC C TC CA C T TG C T TC GTGA CG TAC TG C T CCAC C
Sbjct: 545 CCTCCATCTCAGCCTCTG-CACCATCTCCGTGGACCGGTACGTGGGCGTGCGCCACTCA 603
Query: 439 CTCTCTACCCGTCCAAGATGACCCAGCGCCGCGGTTACCTGC-TCCT--CTATGGCACC 495
CTC TACCC CCA ATGACC AGCGC GG CC C TCCT C TG C C
Sbjct: 604 CTCAAGTACCCAGCCATCATGACCGAGCGCAA-GGCGGCCCGCATCTGGCCCTG-CTC- 660
Query: 496 TGGATTGTGGCCATCCTGCAGAGCACTCTCCACT-CTACGGCTGGGGCCAGGCTGCCTT 554
TGG T GT GCC T TG G C CC CT CT GGCTGG AG C G
Sbjct: 661 TGGGTCTGAGCCCTGGTGGTGTCCGTAGGGCCCTGCTG-GGCTGGAAGGAGCCCGTGCC 719
Query: 555 TGATGAGCGCAATGCTCTCTGCTCCATGATCTGGGGGGCCAGCCCCAGCTACACTATTCT 614
TGA CG A GCT TCTGC AT A C GG GGC GC C GCT T T CT
Sbjct: 720 CCCTGA-CG-AGCGCT-TCTGCGGTATCACCAGGAGGCGGGCTAC-GCTGTCTTCTCCT 775
Query: 615 CAGCGTGGTG-TCCTTCATCGTCATTCCACTGAT--TG-TCATG-ATTGCCTGCTACTCC 669
C G GTG T T CT C T CAT C T AT TG TCATG A TGCC GC T C
Sbjct: 776 CCGTGTGCTCCTTCTACCTGCCCATGGCGGTATCGTGGTCACTGTACTGCC-GCGTGTAC 834
Query: 670 GTGGTGTCTGTGCAGCCCGGAGGCAGCATGCTCTGCTGTACAATGTCAAGAGACACAGC 729
GTGGT C G GCAGC C A GC GCA CTC G G A GTCAAG G C AGC
Sbjct: 835 GTGGTCG-C-GCGCAGCACC-ACGC-GCAGCTC-GAGGCAGGC-GTCAAGCG-CG-AGC 886